

AMENDMENT TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) Irradiation cell for producing a radioisotope of interest through the irradiation of a target material by a particle beam, comprising a metallic insert ~~{2}~~ forming a cavity ~~{7}~~ designed to house the target material and to be closed by an irradiation window, ~~characterised in that~~ wherein said metallic insert ~~{2}~~ comprises at least two separate metallic parts ~~{8, 9}~~ of different materials, being composed of at least a first part ~~{8}~~ comprising said cavity ~~{7}~~ and a second part ~~{9}~~.

2. (Currently Amended) Irradiation cell according to claim 1, wherein said second part ~~{9}~~ surrounds said cavity ~~{7}~~, in a manner to form a channel for guiding a cooling medium.

3. (Currently Amended) Irradiation cell according to claim 2, wherein said cell further comprises a supply means ~~{6}~~ for a cooling medium and in connection with said supply means, an element ~~{3}~~, called "diffusor", surrounding said cavity ~~{7}~~, said diffusor ~~{3}~~ being arranged for guiding said cooling medium around said cavity, and wherein said second part ~~{9}~~ surrounds both said cavity and said diffusor, in a manner to form a return path for said cooling medium between said diffusor and said second part.

4. (Currently Amended) Irradiation cell according to ~~any one of claims 1 to 3~~ claim 1, wherein the contact between said first and second part ~~{8, 9}~~ is a metal-to-metal contact, and wherein the sealing between said parts ~~{8, 9}~~ is obtained by at least one O-ring ~~{33}~~.

5. (Currently Amended) Irradiation cell according to ~~any one of claims 1 to 3~~ claim 1, wherein the sealing between said first and second part ~~{8, 9}~~ is obtained by a gold foil present between said parts.

6. (Currently Amended) Irradiation cell according to ~~any one of claims 1 to 5~~ claim 1, wherein said insert ~~{2}~~ is composed of two metallic parts ~~{8, 9}~~.

7. (Currently Amended) Irradiation cell according to ~~any one of claims 1 to 6~~ claim 1, wherein said parts ~~(8, 9)~~ are assembled together by a number of bolts ~~(10)~~.
8. (Currently Amended) Irradiation cell according to ~~any one of claims 1 to 6~~ claim 1, wherein said parts ~~(8, 9)~~ are assembled together by welding.
9. (Currently Amended) Irradiation cell according to ~~any one of claims 1 to 8~~ claim 1, wherein said first part ~~(8)~~ comprises a flat, circular and ring-shaped portion ~~(16)~~ having an inner circular edge ~~(50)~~ and an outer circular edge ~~(51)~~, a cylindrical portion ~~(17)~~ rising perpendicularly from the inner circular edge of said flat portion, and a hemispherical portion ~~(18)~~ being on top of said cylindrical portion, the cavity ~~(7)~~ being formed inside said cylindrical ~~(17)~~ and hemispherical ~~(18)~~ portions.
10. (Currently Amended) Irradiation cell according to claim 9, wherein said cylindrical portion ~~(17)~~ and/or said hemispherical portion ~~(18)~~ have a wall thickness comprised between 0.3 and 0.7 mm and/or said cavity has a length of at least 50 mm.
11. (Currently Amended) Irradiation cell according to claim 9 ~~or 10~~, wherein said second part ~~(9)~~ has the form of a hollow cylinder having two flat sides ~~(52, 53)~~ essentially perpendicular to a cylindrical side ~~(54)~~, said cylinder being connected by one flat side ~~(53)~~ against the flat portion ~~(16)~~ of said first part ~~(8)~~.
12. (Currently Amended) Irradiation cell according to ~~any one of claims 9 to 11~~ claim 9, wherein one of said two parts ~~(8, 9)~~ has a ridge ~~(26)~~ and the other has a groove ~~(27)~~ corresponding to said ridge, in order to obtain perfect coaxial positioning of said two parts with respect to each other.
13. (Currently Amended) Irradiation cell according to ~~any one of the preceding claims~~ claim 1, wherein said first part ~~(8)~~ is made of niobium or tantalum.
14. (Currently Amended) Irradiation cell according to claim 6, wherein said second part ~~(9)~~ is made of stainless steel.
15. (Currently Amended) An insert ~~(2)~~ for use in an irradiation cell, according to ~~any one of the preceding claims~~ claim 1.
16. (Currently Amended) Method for producing an insert ~~(2)~~ according to claim 14, comprising the steps of:
- forming a first part ~~(8)~~ through machining;

- forming a second part ~~(9)~~; and
- assembling said first ~~(8)~~ and second part ~~(9)~~ with bolts ~~(10)~~ or through welding.

17. (Currently Amended) Use of an irradiation cell according to ~~any of claims 1 to 13~~ claim 1, for filling the cavity ~~(7)~~ volume with about 50% of target material, before starting irradiation.